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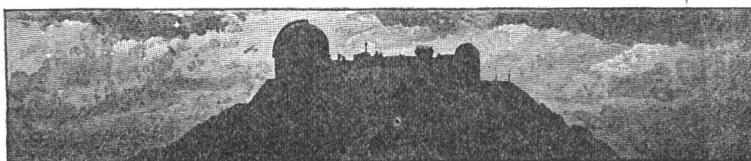
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NOTICES FROM THE LICK OBSERVATORY.

PREPARED BY MEMBERS OF THE STAFF.

ON VARIATIONS OF SHORT PERIOD IN THE LATITUDE\* [BY  
LORD KELVIN, PRESIDENT OF THE ROYAL SOCIETY].

[NOTE.—At the anniversary meeting of the Royal Society of London, November 29, 1892, Lord KELVIN presided, and delivered his annual address, from a report of which the two following paragraphs are taken:]

Last year he referred to the action of the International Geodetic Union in sending an astronomical expedition to Honolulu for the purpose of making a twelve months' series of observations on latitude, corresponding to twelve months' simultaneous observations in European observatories. The results were in splendid agreement with those of the observatories at Berlin, Prague, and Strasburg. They proved beyond all question that from May, 1891, to June, 1892, the latitude of each of the three European observatories was a maximum, and of Honolulu a minimum, in the beginning of October, 1891; that the latitude of the European observatories was a minimum, and of Honolulu a maximum, near the beginning of May, 1892; and that the variations during the year followed, somewhat approximately, a simple harmonic law for a period of 385 days, with a range of about  $\frac{1}{4}$  sec. above and below the mean latitude in each case. He believed the true explanation of this apparent discrepancy from dynamical theory was an elastic yielding of the earth as a whole. We had now, for the first time, what seemed to be a quite decisive demonstration of elastic yielding in the earth as a whole, under the influence of a deforming force, whether of centrifugal force round a varying axis, as in the present case, or of tide-generating influences of the sun and moon. When they considered how much water falls on Europe and Asia during a month or two of rainy

\* See *Publications A. S. P.*, Vols. II, p. 135; III, p. 254; IV, p. 33.

season, and how many weeks or months must pass before it got to the sea, where it had been in the interval, and what had become of the air from which it fell, they need not wonder that the distance of the earth's axis of equilibrium of centrifugal force from the instantaneous axis of rotation should often vary by five to ten metres in the course of a few weeks or months.

ON THE QUESTION OF THE INFLUENCE OF THE SUN UPON  
MAGNETIC STORMS ON THE EARTH [BY LORD KELVIN,  
PRESIDENT OF THE ROYAL SOCIETY].

Several communications to the Royal Society on the subject of simultaneous magnetic disturbances found by observations at magnetic observatories in different parts of the world justified him in saying a few words regarding terrestrial magnetic storms, and the hypothesis that they were due to magnetic waves emanating from the sun. Considering probabilities and possibilities as to the history of the earth from its beginning to the present time, he found it unimaginable, but that terrestrial magnetism was due to the greatness and the rotation of the earth. It seemed probable, also, that the sun, because of its great mass and its rotation in the same direction as the earth's rotation, was a magnet with polarities on the north and south sides of its equator, similar to the terrestrial northern and southern magnetic polarities. It was, therefore, a perfectly proper object for investigation to find whether there was or was not any disturbance of terrestrial magnetism, such as might be produced by a constant magnet in the sun's place with its magnetic axis coincident with the sun's axis of rotation. Even if (which did not seem very probable) we were to be led to believe that the magnetic force of the sun was directly perceptible on the earth, we might be quite certain that this steady force was vastly less in amount than the abruptly varying force which, from the time of Sir EDWARD SABINE's discovery, forty years ago, of an apparent connection between sun spots and terrestrial magnetic storms, we had been almost led to attribute to disturbing action of some kind at the sun's surface. It had been a very tempting hypothesis that quantities of meteoric matter suddenly falling into the sun were the cause, or one of the causes, of those disturbances to which magnetic storms on the earth were due. We might, indeed, knowing that meteorites fall into the earth, assume without doubt that many more of them